Phi Dieu Tran A for the interview at his office on August 13, 2002, in which the undersigned presented a sample block unit with a connective structure in accordance with the invention and several aspects of the claims and the Office Action were discussed. In particular, the teaching of the Hopkins reference, U.S. No. 1,226,214, and the rejections based on that reference were discussed.

2. Rejections Under Section 112

The Office Action rejected claim 6 under Section 112 for indefiniteness. The Office Action asserts that the phrase "arm is vertically displaced with . . . end arms" is indefinite and it is asked how the center arm is vertically displaced. Applicant respectfully submits that the language inserted in claim 6 as amended clarifies the vertical displacement and resolves the rejection.

3. Rejections Under Sections 102 and 103

The Office Action sets forth the following prior art rejections of various claims:

Claims	**Rejection(s)**
17, 19, 21	§ 102(b) anticipated by Hopkins (1,226,214)
1, 3, 4, 10-13, 25, 35, 38, 40	§ 103(a) unpatentable over Hopkins in view of Horobin (4,884,382)
2, 5	§ 103(a) unpatentable over Hopkins in view of Horobin and Smith (4,982,544)
6, 9	§ 103(a) unpatentable over Hopkins in view of Horobin and Smith
14	§ 103(a) unpatentable over Hopkins in view of Horobin, Smith and Vaughn (5,709,060)

18	103(a) unpatentable over Hopkins in view of Smith
20	103(a) unpatentable over Hopkins in view of Stewart (510,720)
24	103(a) unpatentable over Hopkins in view of Smith
41	§ 103(a) unpatentable over Hopkins in view of Horobin

It is respectfully submitted that the teachings of the cited prior art, taken individually or in the cited combinations, are insufficient to support the above rejections, for the following reasons.

4. The Hopkins Reference Fails to Anticipate Claims 17, 19 and 21

Independent claim 17 claims a connective structure used to position and hold together the two walls of the block unit of the present invention. The connective structure joins and securely positions the first and second walls with respect to one another as opposite faces of a discrete, substantially rectangular block unit. This permits the block unit to be independently placed as a unit in a mortared wall structure, with the connective structure being free of direct, structural connection to any wall of each adjacent block unit.

The Hopkins patent teaches "construction of walls and slabs by pouring concrete into permanent molds formed by previously manufactured blocks, preferably of concrete." Hopkins, p. 1, column 1, lines 8-10. A variety of embodiments are shown. Figures 1-11 show the "blocks" that Hopkins uses to form the poured wall of Figure 1. Each outer face block 1 is joined to an opposed inner face block 2 with a connective structure for the wall including:

longitudinal interior blocks 3,

a series of intermediate connecting blocks 4,

a series of upper connecting blocks 5 and

a series of lower connecting blocks 6.

Integrity of the wall against slippage of any one opposed pair of inner and outer blocks 1, 2 relative to an adjacent pair must be provided by the connective structure or (after pouring) any internally-poured concrete areas, such as 7, because Hopkins has no teaching of mortar or other joining of the inner and outer face blocks.

In the anticipation rejection based on Hopkins, it is asserted that Hopkins teaches:

"the connective structure being free of direct structural connection to any wall of any adjacent block unit when the block unit is in a wall structure (the connecters do not enter any other blocks)"

It is respectfully submitted that this is not true for the full connective structure of any opposed pair of face blocks in Hopkins. Intermediate connecting blocks 4 clearly overlap between vertically adjacent pairs of face blocks 1 or 2. Also, the longitudinal interior blocks 3 that are part of the connective structure are staggered to overlap the edges at which horizontally adjacent face blocks 1, 2 meet (see Figure 2). Thus, the quoted statement is only correct as to the upper connecting blocks 5 or lower connecting blocks 6 considered separately. However, because of their position, these connecting blocks 5, 6 have no vertically adjacent block row to which they may attach. Moreover, Figure 1 shows that for any face block pair 1, 2 that is part of the top row in a wall as taught by Hopkins, the connecting structure at the bottom edge of the top row (i.e. the

edge opposite the edge where upper connecting blocks 5 are located) has intermediate connecting blocks 4 that do overlap and connect with vertically adjacent face blocks 1, 2 of the row below. Likewise, Figure 1 shows that for any face block pair 1, 2 that is part of the bottom row in a wall as taught by Hopkins, the connecting structure at the top edge of the bottom row (i.e. the edge opposite the edge where lower connecting blocks 6 are located) has intermediate connecting blocks 4 that do overlap and connect with vertically adjacent face blocks 1, 2 of the row above.

For a prior art reference to anticipate a claimed invention under 35 U.S.C § 102, the reference "must put the claimed invention in the hands of one skilled in the art." In re Sun, 31 U.S.P.Q.2d 1451, 1453 (Fed. Cir. 1993) (unpublished); see also, In re Dohohue, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985). In other words, a prior art reference must be interpreted as would one of ordinary skill in the art. It is submitted that focusing on the boundary case connective blocks 5, 6 (top and bottom row only) as teaching no connection to any adjacent block is inconsistent with the core teaching of Hopkins, which is for the face blocks 1, 2, together with interior blocks 3 and connecting blocks 4, 5 and 6, to serve as forms for poured concrete. In fact, because Hopkins has no teaching of mortar joining or any other way of stabilizing the edges of adjacent face block pairs 1, 2 relative to each other, for wall stability before or during the internal concrete pour, Hopkins must have intermediate connecting blocks 4 that overlap and connect between vertically adjacent face blocks. Consequently, it is submitted that one of ordinary skill in the art, when interpreting Hopkins, would not focus solely on the special case of its connective structure where vertically adjacent face blocks are lacking (top row and bottom row as shown in Hopkins

Figure 1) and then dissect that connective structure, ignoring the portions of the connective structure that make the reference functional, to look at one part of it and then conclude that the dissected component anticipates applicant's invention. (Please see Rule 1.132 Declaration of Stephen P. Samaha.)

In applicant's invention (per amended claim 17) the claimed connective structure formed of a non-masonry material is connected between first and second walls. The connective structure securely positions the first and second walls of the pre-assembled block as opposite faces of a discrete rectangular block. The connective structure of each block unit has at least two connectors, each of which has compressible connectors connected into one of the first and second walls, but each connective structure is free of direct, structural connection to any wall of an adjacent block unit when the block unit is in a wall structure. This quality of the connective structure permits it to form a block unit that can be placed in a wall by conventional masonry construction methods.

To help clarify applicant's invention and point out the fundamental distinction over Hopkins, applicant's amended claim 17 points out that:

1. the connective structure is for a block used "as a unit mortared with other laterally and vertically adjacent units to form a mortared, masonry wall structure, each block unit having a first wall and a second wall, each with a face area and at least one of which is load-bearing for vertical loads."

2. the connective structure has: "a plurality of elements forming arms and connectors for connecting the connective structure between the first wall and the second wall, said arms and connectors comprising at least one arm extending between the first and second walls and supporting at its opposed ends connectors, each connector with a compressible element for insertion into and frictional engagement with one of said first and second walls to securely position said walls with respect to one another as opposed faces".

3. the connective structure is a non-masonry material and is free of direct, structural connection to any wall of each adjacent block unit when the block unit is in a wall structure.

Reconsideration and withdrawal of the rejection of claim 17 based on anticipation by Hopkins are respectfully requested. Claims 19 and 21 are dependent on claim 17 and are allowable for the same reasons as claim 17.

5. The Cited Prior Art Combinations Do Not Support the Section 103 Rejections

In order for a combination of references to establish a case of prima facie obviousness, three requirements must be met:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings;

2. a reasonable expectation of success; and

3. the prior art references when combined must teach or suggest all the claim limitations. MPEP §2142.

The cited combinations of references do not establish a case of prima facie obviousness against independent claims 1 and 35 as amended, because, among other reasons, the cited combinations do not disclose, or even suggest, the combinations of elements recited in applicant's amended claims. The references are addressed below.

The present invention as claimed in amended independent claims 1 and 35 involves a discrete composite block unit for independent placement with other adjacent units to form a wall structure. The block is formed from first and second walls, at least one of which is of a masonry material. Each of the first and second walls has at least one mortar receiving surface for forming a mortar joint with the adjacent block units. A connective structure formed of a non-masonry material is connected between first and second walls. The connective structure securely positions the first and second walls of the pre-assembled block as opposite faces of a discrete rectangular block. The connective structure of each block unit has at least two connectors, each of which is connected to one of the first and second walls, but each connective structure is free of direct, structural connection to any wall of an adjacent block unit when the block unit is in a wall structure. This quality of the connective structure permits the block unit to be placed as an independent unit in a wall by conventional masonry construction methods.

To help clarify applicant's invention and point out the fundamental distinction over Hopkins, applicant's amended claims 1 and 35 point out that the first and second walls have

mortar receiving surfaces that facilitate placing applicant's block units as independent units. Because the units are mortared, the connective structure can be free of any direct structural connection to any wall of each adjacent block. This is significant, because applicant's invention contemplates conventional block laying techniques in which a pre-assembled block with two securely positioned faces is placed utilizing conventional mortar joints (see applicant's Figure 7, at reference no. 100) and without negotiating any connections of the placed block's connective structure to any adjacent block's walls. This means current skilled masons can use the product, and no special effort is needed to interconnect a connective structure as block is laid.

Hopkins has no teaching of any mortar receiving surfaces for interblock mortar joints. In fact, Hopkins lacks any teaching of how to bring together the several block components he shows to form a block unit or, except for the figures showing interlocked connecting blocks, how to assemble such components into a wall. However, given the structure of the interlocking connective block pieces 3, 4, 5, and 6, and the absence of any discussion or showing of mortar joints between adjacent face blocks, it is submitted that Hopkins can only be viewed as teaching building a wall with a component by component, in-place assembly technique, in which there is no pre-assembly of a discrete block unit for independent placement as a unit with other laterally and vertically adjacent block units to form a wall structure. (Please see Rule 1.132 Declaration of Stephen P. Samaha.)

All of the cited references combined with the Hopkins reference show structures different from applicant's and all fail to remedy the fundamental teaching deficiencies of Hopkins as a

basis for the rejections asserted against the claims to which they are applied. No cited combination teaches all the elements claimed by applicant.

Horobin – Like Hopkins, this patent also teaches a form system for casting walls or large panels. Synthetic plastic panels 12, 14 are spaced apart by means of interlocking end walls or panels 16 and a plurality of strut members 18. The forms are a lightweight cellular plastic; thus the assembled forms do not include masonry outer walls. There is no teaching of a discrete, preassembled, composite block unit with at least one masonry wall for independent placement as a unit with other laterally and vertically adjacent block units to form a wall structure.

Smith – The Smith patent covers a concrete module for use in constructing a sealing retaining wall capable of sustaining large vertical loads. The module shown appears to be all concrete with no non-masonry connective structure.

Vaughn – The Vaughn patent shows a form tie for joining the sidewalls of a polymeric concrete form. The ties have exterior struts that are embedded in the sidewalls. There is no teaching of the struts having a compressible component that might help the struts frictionally engage a pair of walls to securely hold these.

Stewart Jr. – This patent teaches a tile building wall made up of several connecting pieces. The side pieces 10 and the cross pieces 12, 15 are made of the same material, terra cotta and glazed tile being mentioned. Thus, the side pieces and cross pieces are all masonry. However, the pieces do not form discrete, preassembled block units, because the cross pieces, 12

and 22 used at the edges of side pieces 10 overlap and connect to laterally adjacent side pieces. Specifically,

> when two side pieces are laid end to end, as shown in Fig. 1, the adjacent ribs 11 of the side pieces will form a dovetail groove between them adapted to receive the dovetail heads or keys 13 which are formed on the cross pieces 12.

Stewart, Jr., p. 1, lines 40-45; see Figs 1, 6 (emphasis added). With this construction, the tiles must be assembled from components in place in a wall structure, and the cross piece of one block has a direct connection to a wall ("side piece") of the adjacent block. This structure is not suited to pre-assembly of a discrete block unit usable for independent placement. The Stewart, Jr. patent teaches no such block unit.

The cited combinations of references do not establish a case of prima facie obviousness against independent claims 1 and 35 as amended, because, among other reasons, the cited combinations do not disclose, or even suggest the full combination of elements recited in applicant's amended claims.

The differences in structure between applicant's claims and the prior art are significant and lead to important advantages over the prior art. Applicant's invention, being a discrete unit with a connective structure requiring no connection to adjacent block units permits construction to occur with conventional block-laying tradesmen, using conventional mortar joint techniques. But applicant's invention makes their job easier and their work more efficient, because each unit is lighter and easier to handle than a conventional concrete/masonry block of the same face area. There is no need for extra connection operations or for manipulation of applicant's connective

structure to join to adjacent wall units. The connective structure is pre-assembled with the walls before the block is placed. The block can simply be placed and its walls mortar joined to other blocks.

Of the references of record, only the Potvin patent (U.S. No. 5845,448; see Disclosure Statement dated December 29, 1999) appears to contemplate discrete blocks assembled from components before laying. But the Potvin structure relies on parallel protrusions 30 from the internal surfaces 13 of each pair of opposed walls, and coupling members 20 with outwardly extending ends 22 that engage the outer surfaces of the protrusions. Moreover, the filing date of Potvin is later than the filing date of the parent application leading to this invention.

Reconsideration and withdrawal of the rejection of claims 1 and 35 based on anticipation by Hopkins are respectfully requested. All claims dependent on claim 1 and 35 are allowable for the same reasons as claim 1 and 35, a fortiori, in view of their additional elements.

6. New Claims

Applicant presents with this amendment new claims 42-49, which are block unit forming method claims made to parallel independent claim 1. These claims are allowable for all the reasons discussed with respect to claim 1, a fortiori, because, as discussed above, the Hopkins reference has no teaching of how to assemble the Hopkins block components 1-6 into a discrete, pre-assembled, composite block unit for independent placement as a unit with other laterally and vertically adjacent units to form a mortared wall structure. In particular it is noted that the

following features are not taught by Hopkins:

1. "providing a first wall and a second wall, at least one of which is load bearing for vertical loads and made from a first, masonry-type material, at least one of said walls having at least one vertical and one horizontal mortar joint surface for forming a mortar joint with at least two of the adjacent block units;"

2. "connecting each of the connectors to one of the first and second walls, by compressing such connector into frictional engagement within a connector formation in said one of the first and second walls,"

Claims 42-49 are allowable for the same reasons as claim 1. Allowance of new claims 42-49 is respectfully requested.

7. Marked Copy of Disclosure Statement

Applicant notes that his file does not show any acknowledgment and return of the Form 1449 submitted with applicant's Information Disclosure Statement dated December 29, 1999. Such acknowledgment and return are respectfully requested.

8. Conclusion

In view of the above amendments and discussion, applicant respectfully submits that the application is in condition for allowance. A Notice of Allowance is respectfully requested.

A petition for a three month extension of time to respond to the pending Office Action accompanies this communication. A duplicate copy of the Fee Determination is also enclosed

herewith. The Office is hereby authorized to charge the amount of $502.00, $460.00 to cover the extension fee and $42.00 to cover the extra claims fee, to Deposit Account 04-1420.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendments. The attached pages are captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

Respectfully submitted,

DORSEY & WHITNEY LLP

Date: Nov. 12, 2002

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Please amend claims 1, 6, 17 and 35 as follows:

1. (Thrice Amended) A discrete, preassembled, composite block unit for independent placement as a unit with other laterally and vertically adjacent units to form a mortared wall structure, comprising:

a first wall and a second wall, at least one of which is load bearing for vertical loads and made from a first, masonry-type material, each said wall having at least one mortar receiving surface for forming a mortar joint with said adjacent block units;

a connective structure formed of a second, non-masonry-type material and connected between the first and second walls, said connective structure having at least two connectors;

wherein each of the connectors is connected to one of the first and second walls, such that prior to placement of the block unit in a wall structure the first and second walls are securely positioned with respect to one another as opposite faces of a discrete, substantially rectangular block, each face having a face area;

wherein the connective structure is free of direct, structural connection to any wall of [any] each adjacent block unit when the block unit is in a wall structure; and

wherein the connective structure comprises arms supporting the at least two connectors and said arms provide a thermal conduction path of limited vertical cross-sectional area relative to either wall face area.

6. (Twice Amended) The block unit of claim 1, wherein the first wall and second wall each have an upper edge when connected by the connective structure and the connective structure comprises:

two end arms and a center arm;

wherein the center arm is vertically displaced with respect to the end arms to a position nearer the said upper edges of the first wall and second wall.

17. (Thrice Amended) A connective structure for forming a discrete, preassembled, composite block unit for independent placement as a unit mortared with other laterally and vertically adjacent units to form a mortared, masonry wall structure, each block unit having a first wall and a second wall, each with a face area and at least one of which is load-bearing for vertical loads, comprising:

a plurality of elements forming arms and connectors for connecting the connective structure between the first wall and the second wall, said arms and connectors comprising at least one arm extending between the first and second walls and supporting at its opposed ends connectors, each connector with a compressible element for insertion into and frictional engagement with one of said first and second walls to securely position said walls with respect to one another as opposed faces;

wherein the connective structure is a non-masonry material and is free of direct, structural connection to any wall of [any] each adjacent block unit when the block unit is in a wall structure; and

wherein [the connective structure comprises at least one arm extending between the first and second walls and supporting at its opposed ends connectors and] said at least one arm provides a thermal conduction path of limited vertical cross-sectional area relative to either face area.

35. (Thrice Amended) A discrete block unit for independent placement as a unit with other laterally and vertically adjacent units to form a mortared wall structure comprising:

a first wall and a second wall, at least one of which is made from a masonry material and capable of vertical load bearing and each of which has a connector formation and a vertical face area, each said wall having at least one mortar receiving surface for forming a mortar joint with said adjacent block units;

a connective structure of non-masonry material positioned and connected between the first and second walls, said connective structure having at least one connector that engages the connector formation at the first wall and at least one connector that engages the connector formation at the second wall;

wherein the connective structure is free of direct, structural connection to any wall of [any] each adjacent block unit when the block unit is in a wall structure; and

wherein the connective structure comprises arms supporting at least two connectors and said arms provide a thermal conduction path of limited vertical cross-sectional area relative to either wall face area.

Please add new claims 42-49 as follows:

42. (New) A method for making a discrete, preassembled, composite block unit for independent placement as a unit with other laterally and vertically adjacent block units to form a mortared wall structure, comprising:

providing a first wall and a second wall, at least one of which is load bearing for vertical loads and made from a first, masonry-type material, at least one of said walls having at least one vertical and one horizontal mortar joint surface for forming a mortar joint with at least two of the adjacent block units;

providing a connective structure formed of a second, non-masonry-type material and connected between the first and second walls, said connective structure having at least two connectors;

connecting each of the connectors to one of the first and second walls, by compressing such connector into frictional engagement within a connector formation in said one of the first and second walls, such that prior to placement of the block unit in a wall structure and forming any mortar joints with adjacent block units, the first and second walls are securely positioned with respect to one another as opposite faces of a discrete, substantially rectangular block

placeable as a unit with said mortar joints and with the connective structure being free of direct, structural connection to any wall of each adjacent block unit when the block unit is in a wall structure.

43. (New) A method of making a block unit as claimed in claim 42 wherein each of the at least two connectors is an insert-type connector and the step of connecting each of the connectors to each of the first and second walls comprises matingly engaging the insert-type connector in a connector formation.

44. (New) The block unit of claim 43, wherein the connector formation is a receptacle and the step of connecting each of the insert-type connectors comprises inserting the connector into the receptacle, such that the insert-type connector is frictionally engaged by the receptacle.

45. (New) The method of claim 43, further comprising providing a center form and attaching to the connective structure a center form supported on the connective structure.

46. (New) The method of claim 42, wherein the step of providing a connective structure comprises providing a center arm and the step of connecting comprises installing such center arm between and flush with a top surface of the first and second walls.

47. (New) The method of claim 42, wherein the step of providing a connective structure comprises producing a connective structure of a plastic material.

48. (New) The method of claim 42, further comprising providing on the connective structure a partition that forms a first cavity with the first wall and a second cavity with the second wall.

49. (New) The method of claim 42, further comprising providing on the connective structure an insulating element of a size substantially equal to the area of the first wall or the second wall.